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Objective:
To report two cases of Progressive Multifocal Leukoencephalopathy (PML) associated with Acquired Immunodeficiency Syndrome (AIDS) and elevated CD4 count, atypical clinical presentations and radiographic features.

Case 1:
Clinical presentation:
- 46 year-old man with AIDS (CD4: 420 cells/mm3, viral load< 48 copies/ml) presented with a 3-month history of generalized weakness, fatigue, dysarthria and dysphagia for solids and liquids.
- His weakness started in the right lower extremity and progressed to quadriparesis.

Neurological examination:
- Spastic dysarthria and pseudobulbar affect with intermittent crying.
- Cranial nerve examination revealed only tongue fibrillation.
- Motor examination: Diffuse atrophy & weakness, distally more than proximally and on the right side more than left side.
- He was hyperreflexive with clonus in the lower extremities.
- He had mild dysmetria in the upper extremities bilaterally.

Radiologic findings:
- MRI brain w/o contrast: bilateral T2 hyperintensities involving the corticospinal tracts from the level of internal capsule to brainstem.
- MRI of the C-spine w/o contrast showed right sided myelomalacia at the level of C3-C7.

Hospital course:
- PEG tube placement for severe dysphagia.
- Complicated by respiratory failure secondary to aspiration pneumonia requiring intubation.
- Patient’s code status was changed to comfort care and he died of respiratory failure.
- Autopsy showed diffuse cerebral hemispheres and brain stem demyelination with classic pleomorphic multinucleated astrocytes and ground glass appearance of infected oligodendrocyte nuclei consistent with PML.

Laboratory data:
- CSF: WBC 6 cells/mm3 (94% lymphocyte), protein 110 mg/dl. CSF HSV-1, HSV-2, EBV, CMV were negative. CSF JCV DNA PCR was positive.

Laboratory data and Hospital Course:
- CSF: WBC 97 cells/mm3 (lymphocyte-predominant), protein 94.6 mg/dl. Cryptococcus antigen, West Nile virus PCR neg. JCV DNA PCR positive.
- She was initiated on HAART and was stable at three-month follow up.

Discussion:
- PML is typically associated with low CD4 count in patients with AIDS (CD4=200). The highest CD4 count that has been reported is > 700. Both of our patients had high CD4 counts (420 and 513, respectively).
- The typical clinical presentation for PML is focal neurological symptoms. In contrast, both of our patients had atypical findings- predominantly upper motor neuron findings (as seen in PLS or ALS) and pan cerebellar syndrome (as seen in paraneoplastic cerebellar degeneration.)
- Typical MRI findings include T2 hyperintensities involving the parietal or occipital lobes. Our patients had atypical involvement of the corticospinal tracts and brain stem and cerebellar involvement.
- The gold standard for diagnosis is brain biopsy which shows bizarre astrocytes, enlarged oligodendrocyte nuclei and demyelination which were seen on the autopsy of the first case. The diagnosis in the second case was made based on the MRI, CSF JCV DNA PCR and absence of alternative explanation.
- Treatment of PML in AIDS involves initiation of antiretroviral therapy. There are no specific therapies.

Conclusion:
- PML may present in patients with elevated CD4 counts. These patients may have variable clinical and radiographic presentations.

References:

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